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J. R. ROWE

REGULATION ROUNDUP

MAJOR CHANGES APPLY TO KILLING ANTLERLESS DEER AND BEARDLESS TURKEYS

THE most important changes in regulations which must be borne in mind by upland game hunters this year are the adoption of a fall season in which bearded turkeys only will be legal game throughout eastern Virginia, and the setting of antlerless deer hunting days at the end instead of the beginning of the season.

Continued deterioration of wild turkey habitat in eastern counties, increasing hunter pressure, and a series of unsuccessful nesting seasons have made year around protection of hen turkeys east of the Blue Ridge the only safe course of action. Hunters will have to exercise a high degree of self-discipline to comply with the new regulation which requires that they actually *see a beard* on a wild turkey before they shoot it. Snap shots at turkeys on the flush or running before a deer drive will be risky business in the eastern counties this year, and hunters will be well advised to hold their fire in such circumstances.

Carefully analyzed statistics show that the legal doe kill per open day can be substantially reduced by delaying antlerless deer shooting until the end of the season. Possible reasons why this occurs are: antlerless deer may be less shy and "spooky" when the season opens than at its end; hunter pressure is greater at the beginning than at the end of the season; and some hunters will have filled their season limit before the antlerless season opens. In any event, since for whatever reason a late doe season actually does result in a

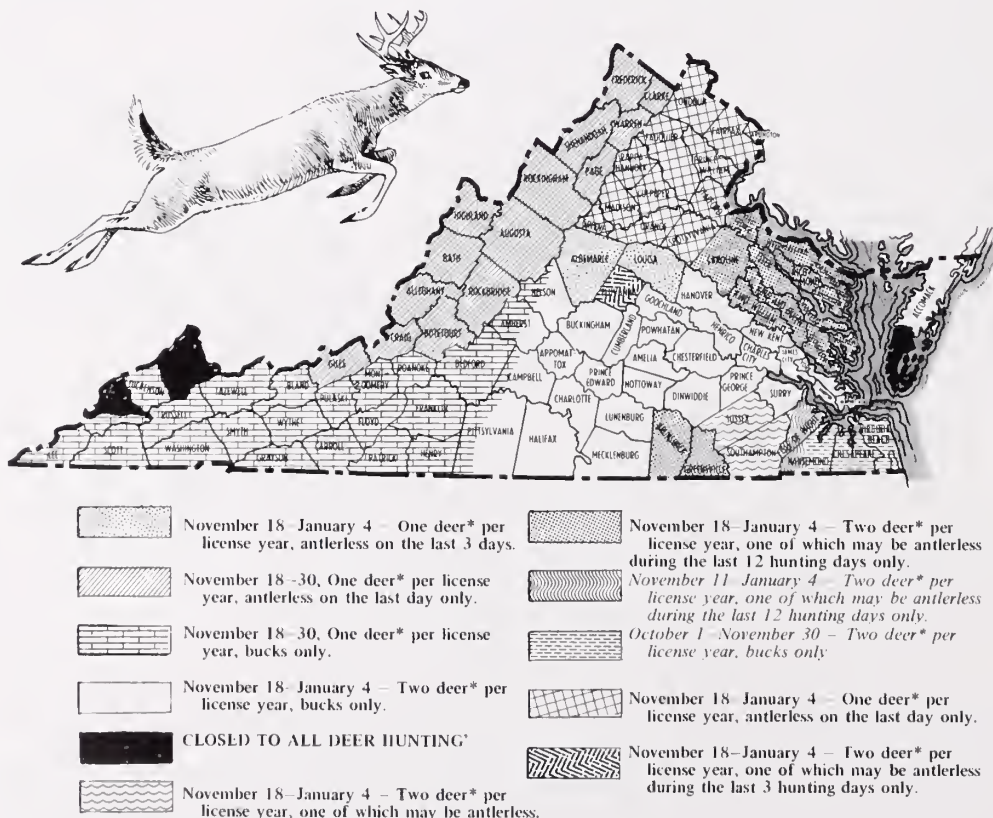
smaller harvest per open day, the Commission regards the setting of antlerless shooting at the end of the season as a means of regulating the doe kill with more precision. The number of doe harvested can be varied as herd and range conditions require by varying the number of days open to antlerless deer shooting at the end of the season, whereas in some areas a single antlerless day at the beginning of the season has resulted in a larger percent of females in the total harvest than was desired.

West of the Blue Ridge an antlerless deer will be legal game on the last day of the season in Alleghany, Augusta, Bath, Botetourt, Clarke, Craig, Frederick, Giles, Highland, Page, Rockbridge, Rockingham, Shenandoah and Warren Counties, while in the remaining western counties shooting will be limited to bucks only throughout the season.

East of the Blue Ridge the northern counties will have a one deer limit with doe shooting allowed on the last day. Albemarle, Louisa and Fluvanna Counties will have three days of antlerless shooting at the end of the season. One doe will be permitted in the bag in Northern Neck counties and in Brunswick, Greenville, Isle of Wight and western Nansemond Counties during the last twelve days of the season. Southampton and Sussex Counties will be allowed one doe within their two-deer limit throughout the season. The rest of the eastern counties will have a bucks-only season this year.

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1968-69 Deer Seasons and Limits



* BUCKS WITH ANTLERS VISIBLE ABOVE THE HAIR EXCEPT AS OTHERWISE SPECIFIED*

NO MORE THAN ONE DEER MAY BE TAKEN IN ANY ONE DAY

THE DUCKS UNLIMITED STORY

By KENNETH V. McCREARY
Executive Secretary, Ducks Unlimited



SINCE the dawn of civilization waterfowl have held a unique and wondrous fascination for mankind. Watching flocks of migrating ducks darken the sunrise of a crisp autumn morning; seeing a graceful vee of geese silhouetted high against a yellow Harvest Moon; following a flight of mallards as they wheel and drop into a wind-swept marsh—these are memorable and pulse-quickenning moments.

Back at the century's beginning it was a commonplace experience, when the color-splashed days of fall arrived, to see massive numbers of ducks and geese literally blanketing the sky as they winged southward to their traditional wintering grounds, pulled by the mysterious magnet of their migratory instinct.

This breath-taking vision of seemingly endless flocks of waterfowl in flight was a noble heritage graciously endowed upon man by nature—a heritage for him to enjoy, to protect and to hand down as a legacy for the generations to follow. Those who thrilled at the awesome sight of these countless thousands of wildfowl gave little thought to any possibility of the skies ever becoming almost devoid of ducks. It was unbelievable that the glorious tradition of waterfowling could ever be pushed to the brink of becoming just a memory of the bountiful “good old days.” Yet, fantastic as the possibility seemed, within a few fleeting years such grim prospects came dangerously close to reality.

Shortly after World War I civilization rapidly sprawled westward across the North American continent, like a huge wave encompassing the prairie areas of both Canada and the U. S. Among sportsmen-conservationists there soon arose a disturbing observation—the vast, sky-darkening flocks of ducks were rapidly disappearing. As the waterfowl popu-

lations continued their downward plunge toward oblivion, the concern mounted into full scale alarm—the drastic decline gave rise to dire predictions of the death of our duck hunting heritage.

So it was, in this black hour, that the solid foundation for Ducks Unlimited was carved, in 1929, with the formation of the “More Game Birds In America Foundation.” Searching for the answers to the dark problems responsible for the tragic decrease of continental waterfowl populations, the Foundation launched an intensive study, lasting several years. Among the survey's conclusions: (1) over 65% of the continent's waterfowl begin life in the three rich Canadian prairie provinces of Alberta, Saskatchewan and Manitoba; (2) the irresistible onslaught of civilization, through draining and cultivation, was steadily ravishing the prime breeding grounds; (3) natural droughts and floods were becoming increasingly critical as a limiting factor in waterfowl production. Finally, the study concluded that *if* the duck and geese populations were to be maintained and restored, then immediate efforts must begin in the gigantic task of rehabilitating and preserving the primary nesting areas of Canada.

To attack this monumental task, a group of farsighted American sportsmen banded together to form Ducks Unlimited. It was January 29, 1937, that DU was incorporated in the nation's capital as a unique non-profit membership organization, dedicated to the wise conservation of waterfowl and the perpetuation of the noble heritage of waterfowling.

The U. S. government, realizing that federal funds could not be spent for conservation in Canada (even though American sportsmen gained primary benefit), granted tax

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VISION AND HUNTING SAFETY

By ERNEST J. FOLDI

Harrisonburg

THE 1968-69 hunting season is upon us and over 300,000 Virginia sportsmen are expected to answer the call of the wild and enter the forests and fields in search of their game. Fortunately, most of them will hunt safely because the average hunter is safety conscious. However, as always, there will be a few accidents.

Statistics show that hunting mishaps rank far down the list of general casualties but even one injury is a tragedy, particularly since nearly all such accidents could be avoided.

Keeping the hunter from becoming a participant in a tragedy doesn't necessarily require high-powered training—although some states require competency courses for first-license holders. Nor does it require new legislation restricting the right to bear arms. Actually, hunters are proud of



Faced with a split-second decision before squeezing the trigger, the hunter must rely upon sharp vision in determining whether it is safe to shoot.

their overall safety record and it is up to every shooter to exercise proper prudence to keep it that way and to do their part to make the sport safe with just a few simple precautions.

Simplest—and most important—of all is a vision check. Despite what most sportsmen think, the first thing a hunter should check is his eyes. According to the National Rifle Association, three of the major causes of hunting tragedies are directly related to vision.

Typically, these accidents occur when the victim is out of sight of the shooter, when the victim is covered by a shooter swinging on game, or when the victim is mistaken for game. When it comes to avoiding these accidents, the efficiency of the hunter's vision is all-important. Faced with split-second decisions before squeezing the trigger, the hunter makes up his mind primarily on the basis of what he sees—or what he thinks he sees.

According to the American Optometric Association, many hunters are unaware that their vision is defective. They think that they see fine. Others hesitate to admit they have a problem for fear they must give up their sport. Fortunately, most vision defects can be corrected and, generally, there is no need to give up hunting. Good vision can result in more game, and may mean the difference between life and death.

The American Optometric Association's six-part checklist for hunters starts with the ability to distinguish detail. The skillful hunter must be able to spot his quarry at a distance, and against the background of natural camouflage. Sharp, clear vision is a must—aided, if necessary, by special eyeglass prescriptions.

Second, the hunter must be able to focus clearly from the back sight of his gun to the front sight, and to the target within a fraction of a second. Blurring—common around the age of forty—is a matter of rapid muscle movement. Because of the rapidity with which the focus must be made between rear and front sights and the target, the problem cannot be solved readily with glasses. There are, however, two alternatives to the problem of the blurred rear sight. When a tendency to blurred vision is established, the hunter can compensate with a peep sight or scope, either of which will eliminate the need to adjust to the rear sight.

Third, the hunter must be able to judge distance—without being susceptible to optical illusions fostered by deceiving terrain. The hunter who consistently over- or underestimates his range has a depth perception problem that proper glasses can correct.

Fourth, the hunter must be able to detect objects on either side of the target—requiring good functioning of the eye for both central and peripheral vision. The hunter whose field of vision is confined to a view straight ahead presents a real problem—to himself, and to anyone else unlucky enough to be in his vicinity. "Tunnel vision" should not go undetected.

Fifth, the hunter must be able to identify colors—an ability that 350,000 of the seven million men who apply for licenses annually, throughout the country, don't have. Without vision examinations most of them don't even know their own shortcomings—a fact that makes it imperative for every hunter to wear high-visibility colors.

Fluorescent yellow and "blaze" orange are most satisfactory under all weather and lighting conditions, according to recent optometric association studies. The same tests, incidentally, have eliminated old-fashioned red as a safe color; it's proven too hard to see at dusk and a real problem when a hunter is color-blind.

Sixth, a smart hunter makes sure he can see under a variety of lighting and weather conditions. Bright sunlight, clouds, rain, snow, sleet and fog place different demands upon the visual process. Safety sunglasses are an excellent aid—even for those without other vision problems. To provide a maximum of glare absorption and a minimum of color distortion, outdoor glasses should be professionally prescribed—and should never contain yellow lenses, which inter-

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Let's Cook A Brunswick Stew

By MARJORIE LATHAM MASSELIN
Richmond

BETTER known by another name, and more often made now with plain old grocery store chicken than according to the original recipes that called for squirrel, Brunswick stew remains an all-time favorite. No wonder! It is mighty good eating. But let's not use comparatively tasteless chicken when the flavor can be "pepped up" and, to our way of thinking, greatly improved with such easy-to-find small game as squirrel.

Whenever the subject of wild game is brought up, the conversation seems automatically to turn toward deer, moose . . . even bear! One's sights seem always to be set on these glamorous "big game" animals. However, more actual *gun* sights get zeroed in on the small game—squirrels, rabbits, 'coon and 'possum. A good many of these *do* get to the table, but not nearly enough.

First of all, some of these animals—certainly squirrel—can be taken with a .22, the traditional "first gun" that a boy is given. One hopes he will also be given proper training in its use. The National Rifle Association and the Virginia Commission of Game and Inland Fisheries do their best to make such training available and accessible. Fathers with teen-age sons who want to learn or improve shooting skills may want to write the NRA in Washington, D. C., to learn more about one very worthwhile way of doing this on the NRA's annual Father and son instruction-vacations. To kill with a single shot from a .22, the aim must be A-OK; whereas one need not be any great shucks as a marksman to pepper an animal with buckshot. With a .22 a boy has a better chance of improving his sportsmanship along with his marksmanship. Hunting, after all, is supposed to be a sport.

Secondly, squirrels can be hunted early in the fall in many areas as well as during the general hunting season; they can be hunted in the snow; they can be found closer to town than larger game. Hunting them, an average boy can get a lot of fresh air and exercise, stay out of a lot of mischief and feel ten-feet tall when Mother serves up the game he brings home as a mouth-watering Brunswick stew.

The recipes for this traditional dish are probably as varied as the people who make it, and the origin of the stew is as hotly disputed as the way to make a mint julep. My introduction to Brunswick stew took place in Columbus, Georgia, and for years I was completely brainwashed on the subject. Obviously it had been invented in Brunswick, Georgia! That theory held until I served it to a Kentuckian and heard myself being asked where I had learned to cook a good old Kentucky dish like that. Then we moved to Virginia and learned that Brunswick stew had really been a Virginia dish all the time. At this point we no longer wonder or worry about where Brunswick stew began its career; our only interest is in enjoying it, helping perpetuate its longevity and spread its fame. Like most dishes of this kind, it probably originated in a multiplicity of areas simultaneously and was made with whatever ingredients were at hand—some seasonal and some staple. Here are two variations that will warm the cockles of the heart in any kind of weather.

Traditional Brunswick Stew

Skin, draw, wash and cut up 3 or 4 squirrels. Put them into a large, deep kettle and pour in enough cold water to cover. Add a large, peeled onion of the strong, cooking variety, a half dozen peppercorns per squirrel, a few sprigs of fresh parsley, a handful of the coarsest green leaves cut from the top of a bunch of celery, and a moderate amount of salt. I use salt more sparingly than most cooks, so you must suit your family's taste. Cover the kettle and bring it to the boil. Then reduce the heat and simmer slowly until the meat is just about ready to fall from the bone. Remove from the heat and let the squirrel stand in the stock until it cools.

Remove the meat to a work surface and strain the stock. If necessary skim it as well. Prepare 2 medium-size onions cut coarsely and after cleaning the kettle, fry these in 2 tablespoons butter until they are golden and transparent. Add the stock, and *for each squirrel* used add the following:

- 1 small and tender carrot, scraped and sliced
- 1 peeled potato, cubed (about $\frac{1}{2}$ cup)
- 1 ear of fresh corn, cut from the cob

A handful of fresh or frozen baby lima beans



Leonard Lee Rue III photo

Generations of young hunters have learned their first lessons in woods-manship and gun handling in pursuit of the squirrel.

Simmer these vegetables in the stock until all are tender. Then and only then, add a #2 can of tomatoes.* Tomatoes, when added before the other vegetables are tender, will prevent their ever becoming really well done. Continue cooking until the tomatoes disintegrate and are assimilated into the broth.

Remove the crusts from a slice or two of white bread and rub the remaining slices into fluffy white crumbs. Stir these in to thicken the broth. Correct the seasoning with salt and pepper as desired and add a few drops of Tabasco.

Last of all, return the boned squirrel to the stew pot and bring just to the boil. Be careful not to let it boil furiously after the bread has been added, because the whole thing will burn on the bottom of the pot faster than you can believe possible.

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*Amount based on 3-4 squirrels. Use 1 fresh tomato per squirrel. Scald in boiling water to slip skin off easily and cut out the stem end before adding.

Wildlife Management on the New Castle Ranger District

(Last in a series of three articles)

By W. ALAN GUTHRIE
Game Biologist

THE New Castle Ranger District, with headquarters in New Castle, includes U. S. Forest Service land in Craig, Botetourt, and Roanoke Counties and has a total area of over 127,000 acres.

Three game management units exist on the New Castle District. They are known as the Barbours Creek, Broad Run, and Cuba Units, with each unit being approximately $\frac{1}{3}$ of the entire district. Each unit has a resident game manager assigned to it. Rather than discuss the three units separately, we will consider them as a group since they are quite similar in most respects, and management activities throughout the entire Ranger District have been quite similar.

The district lies in the Ridge and Valley Province of Virginia, and is typical of such. Characteristically, the land ranges from rich bottomlands along excellent streams to poor, dry, shaly, steep ridges. As such, one can expect poor to excellent recreation throughout the district.

Management activities on the New Castle District date back to the earliest days of cooperative work between the U. S. Forest Service and the Virginia Commission of Game and Inland Fisheries. A prime example is the Patterson Creek section, which was one of the first areas in Virginia to have a comprehensive wildlife habitat development plan completed, and today is considered one of the better areas in Virginia to hunt deer, squirrels, and turkeys. These management activities include establishment of clearings and other openings, wildlife plantings, construction of water-holes, and providing access roads and foot trails.

Sportsmen and others who have hunted, fished, camped, or hiked in this district will be familiar with Broad Run, Barbours Creek, Cuba, Patterson Creek, Tub Run, Potts Mountain, Peters Mountain, Johns Creek, or some other common section of the district. Each has received its share of attention toward recreational development. Years ago wildlife clearings were bulldozed in the forest, the land was properly prepared and was seeded with grasses and clovers. These have been maintained throughout the years, either by hand cutting or by mowing, and by complete or partial replanting periodically. For the past several years, agricultural type clearings have not been constructed. Substituted for these have been the seeded roads and trails with which many hunters have become familiar. Abandoned logging roads and skid trails have been daylighted, thoroughly disked and seeded. These provide palatable wildlife food and also provide openings for turkeys to rear their poults. Since this type of opening is usually about 8-10 feet wide and 1 mile long (1 acre approximately), it is easy to understand that wildlife over a larger area would benefit from this than from a 200-foot square (1 acre) clearing. More edge effect is provided by the seeded trail.

It has long been realized that water might be the main limiting factor in many areas. With this in mind, game

managers and others concerned have searched out likely areas (seeps, wet weather streams, etc.) where a small dam could be made to collect water and provide a wildlife water hole. A large number of these have been constructed throughout the years, and the tracks of deer, turkeys and other species around the pond banks clearly indicate that they have proven to be quite valuable.

Chestnut plantations have been established, apple trees have been planted, autumn olive (berry-producing shrub) plantations have been made, food patches of seed-producing annuals have been planted, large stands of wild grapes have been released (freed of competing vegetation), and large stands of bear oak, which is perhaps our most reliable mast producer, have been released.

For many years wildlife management activities have been varied and numerous. And, for the most part, these activities have paid fine dividends. Wildlife is plentiful and sportsmen are enjoying excellent deer, turkey, bear, and small game hunting.

The several streams offer good fishing. Trout, bass, chain pickerel, and other species are found throughout the district. Many streams are stocked with hatchery-reared trout in the spring and summer to provide the angler with many hours of exciting sport. In addition, some streams have native trout for the fisherman who cares to search out the more remote areas.

Adequate camping facilities have been provided by the U. S. Forest Service. From these campsites, foot trails and roads provide easy access to some of the more remote areas for sportsmen and others interested in the many phases of nature study.

Few people realize the tremendous amount of work required of a game manager to provide the variety of outdoor recreation supplied on the New Castle District. Establishment of clearings and other openings, daylighting and seeding roads and trails, maintaining openings, planting wildlife food trees, releasing native foods, digging mountain trails, cutting brush from trails, road maintenance, game census work, operating game checking stations, patrol for game and fish violators—there is no end to the list of activities required.

The Broad Run Wildlife Study Area is located on the New Castle District. It is a 10,000-acre outdoor laboratory used by Virginia Polytechnic Institute graduate students to work on Master Degree requirements. It is also used by the Virginia Cooperative Wildlife Research Unit, Southeast Forest Experiment Station, and the Virginia Commission of Game and Inland Fisheries to conduct various investigative studies. Over 500 acres of timber have been regenerated (clear cut to provide an even aged timber stand) to study the effects on wildlife populations. Wildlife management is not a static thing, but rather dynamic. Constant research is being conducted to develop new techniques, methods, and ideas for optimum management of wildlife.

The New Castle District is one of the finest examples in the State of long-lasting desirable effects of close cooperation between the two agencies—the U. S. Forest Service and the Virginia Commission of Game and Inland Fisheries. One trip to this area will convince you—and I'll bet it will not be your last visit. When can we expect you?



An old logging road on the New Castle District "daylighted" and prepared for planting.

ALL ABOUT

ANTLERS



THE sun flashing from a big whitetail's rack is a sight sure to set any deer hunter's heart pounding. The mass and spread of a deer's antlers have long been the measure of a hunter's prowess in bagging the animal, although not always a true indication of the difficulty of the feat. Generally, the older a deer gets the more impressive his rack, and a buck must be wise or mighty lucky to reach a ripe old age under today's hunting pressure. Even the Indians valued the deer's antlers, not as the customary wall mount of today's sportsmen, but as material for tools and decorations.

Sportsmen are often heard using the word horn and antler interchangeably, although the two are quite different structures which just happen to be located at the same point in an animal's anatomy and serve the same purpose. Horns are found on sheep, goats, cattle and antelope. These structures contain a core of permanent bone covered by a sheath of keratin, a material similar to that which forms animal hoofs and human fingernails. Horns are not shed, although the sheath may come off and be replaced if damaged. The American pronghorn antelope is an oddball which sheds this sheath (composed of modified hair in this case) annually. Once removed completely, horns do not grow back as evidenced by de-horned cattle.

In contrast, antlers are composed of solid bone and covered by the epidermis (velvet) only until mature. They are usually branched and are shed annually. Antlers are possessed, with two exceptions, only by male members of the family Cervidae (deer family), which in North America includes the moose, elk, mule deer, white-tailed deer, and caribou. The caribou and reindeer are the exceptions, with the females exhibiting small antlers. Only two members of the deer family do not grow antlers, the musk deer and Chinese water deer of Asia. Instead, they are fitted with tusks similar to those of the wild boar. The antlers of the deer tribe are shed each year, including the massive structures of the moose, elk and caribou.

With a few exceptions, the remaining portion of this article refers specifically to the white-tailed deer (*Odocoileus virginianus*), that member of the Cervidae with which the Virginia sportsman is most familiar.

PHYSIOLOGY OF GROWTH—

White-tailed deer normally begin antler development at 10 months of age. Some believe that the small round "buttons" of the fawn buck are developing antlers, but this is incorrect. These circular protuberances are actually the terminal ends of the antler pedicles, the bony extension of the frontal bone from which the antler will be formed. The pedicles can be felt when the animal is about 2-3 months old and seen at 6 months, when they are approximately 1½ inches long. At 10 months of age, the skin covering the pedicles breaks with the onset of antler growth. Florida biologists have reported 6-10 month old fawns with polished antlers 1 to 3 inches in length. This is quite unusual, and is probably the result of the mild climatic conditions typical of southern United States. Mature Florida bucks sport polished antlers by mid-July, a time when the whitetails inhabiting the more northern states are still in the velvet.

THE ANNUAL CYCLE—

The normal cycle of antler development begins in early April, with the increasing periods of daylight. This increased exposure to light stimulates the pituitary, a gland located within the basal area of the skull. The secretions of this gland indirectly stimulate the male sex glands or testes which produce the hormone testosterone. It is this hormone which actually initiates the process of antler development.

The newly forming antlers first become obvious in May. During this initial period of development, growth is very rapid, as much as ½ inch a day. Usually the first fork will appear before the end of the month.

By June, assuming the animal is in good physical condition, the second fork may appear. During the entire period of development, the antlers are covered by the protective epidermis or velvet. Supplied with nerve endings and blood vessels, the velvet not only protects, but also supplies the antler with the nutrients needed for proper development. Seemingly they sense the fragility of their antlers at this point of development and the bucks become quite solitary, spending much of their time in heavy cover.

Maximum width or spread is attained by July. By now most of the points have been formed, and the calcification process, which will eventually turn the entire structure to bone, begins at the antler base.

The hardening process is almost complete by the end of August. The antlers, which until now were no more than masses of connective tissue produced by the dermis (second skin layer), become impregnated with lime.

The shedding of the velvet in September marks the final stage in the development cycle. The testosterone level in the blood rises markedly, completing the hardening process and causing the blood vessels at the antler base to constrict. Now, with the blood supply cut off, the velvet soon dies and is quickly removed by the animal.

A buck may polish his antlers for weeks following the loss of the velvet, giving the points a bright ivory appearance. It is of interest to note at this point, that the staining of the antlers is caused principally by the bloody residue of the velvet and not by the sap of trees and shrubs upon which they were polished.

January is the principal time of antler loss in the more northern portions of the whitetail's range. Now the blood vessels, which have fed the spongy core of the antler, are constricted by the increase of bony tissue around the base. The antler now dies and granulation tissue is formed within the base of the antler pedicle, as the blood vessels increase in both size and number. The connection between the antler and pedicle is thus broken and the antler is dropped, exposing the red, socket-shaped terminal end of the pedicle.

Usually, both antlers are dropped within a few hours of each other. There have been reports, however, of days or

Adapted from "The Antler Story" by Robert C. Lund, *New Jersey Outdoors*, December, 1967.

even weeks elapsing between individual drops.

Though it does not always hold true, it is generally accepted that older bucks will begin antler growth earlier and drop them sooner than younger animals. Furthermore, a healthy deer is more likely to drop its antlers before one that is in poor physical condition.

Of interest is the fact that in tropical areas where there is little climatic variation, and subsequently no definite breeding season, antlers are formed and dropped throughout the year.

Sportsmen often wonder why, though they may spend many hours in the field, very few antlers are found. A recently completed study in Texas may help to answer this question. Data gathered by wildlife biologist Edwin D. Michael at the Wedder Wildlife Refuge indicates four possible explanations: 1. small number of antlers in a given area; 2. hidden by spring and summer vegetation; 3. badly decomposed by the elements; 4. consumed or gnawed by various species of mammals, especially rodents.

The latter is probably the most important. The study further revealed the fact that deer themselves often chew on dropped antlers, and that the older, more weather-worn ones are preferred. (No doubt because they are more easily consumed.) Of the total 155 antlers studied, 15.5 percent had been chewed by deer.

ANTLER FUNCTIONS—

During the early 1800's, Charles Darwin, the father of evolution, concluded that the antlers of the Cervidae had been evolved through selection because of their value to the males in combat. Dr. Ernest Walker, in his monumental work *Mammals of the World*, believes their value lies in their use as sexual adornments. The close correlation existing between the antler development cycle and the breeding season tends to substantiate both of these theories. However, neither takes into account the fact that both the reindeer and caribou have learned to use their antlers as tools to dig lichens from the frozen tundra floor. Perhaps the dependency on lichens explains the presence of antlered females in these two species.

Even with reservations, the importance of antlers in the fights between rival bucks for receptive females is obvious. Though much publicized in popular literature, these confrontations are more pushing contests than all-out rough and tumbles. Usually a "fight" lasts but a few minutes, but records indicate that they may infrequently last up to two hours. Rarely is either participant severely or fatally injured. However, if the antlers should become locked, both animals are doomed to death via exposure and starvation.

It is generally accepted that the major portion of both the fighting and the breeding is done by the 2½ year old and older bucks. This assumption is based on the fact that few yearling bucks (1½) are found with broken antlers, indicating a minimum participation in combat.

ANTLER SIZE—

At least three factors control the extent of antler development: age; hereditary background; quality and quantity of available food plants.

Generally, the older the animal the larger the antlers. Between the ages of 1½ and 3½ years, there is a rapid increase in antler beam diameter. From 4½ to 7½ years, the increases continue, but at a much slower rate. Points generally increase to the age of 4½ years, after which they usually stabilize.

A young buck in excellent physical condition may have more points than an animal many years his senior, but suffer-

ing from malnutrition or the infirmities of age. In fact, very old individuals (10 years plus) may have no antlers at all. This can be explained as a function of inadequate supplies of essential hormones. However, few deer in the wild reach such an advanced age before man and nature take their toll.

When considering extensive areas, the effect of natural selection on the genetics of the various races of white-tailed deer is obvious. In general, those races inhabiting the more northern sections of North America exhibit appreciably larger antlers and greater body size than their southern counterparts. The value of this size variation can be explained by "Bergmann's Rule" which states that in warm-blooded species, the larger the animal the less relative surface area is exposed to the environment. This permits minimal heat loss, allowing the northern races to adapt better to the severe winters typical of their range. The weight variations exhibited by the 30-odd subspecies or races of the white-tailed deer range from 50-pound adult bucks of the Florida Keys to the 400-pound monarchs of Minnesota and Wisconsin.

When speaking in terms of limited areas, diet is probably the most important factor controlling antler development. To be more specific, it is the quantity and quality of the forage available during the previous winter which exerts the major influence. This is especially true for young animals (less than 3 years), where body growth and maintenance take precedence over antler growth. Usually, only those individuals attaining good body growth will develop large antlers. Since range conditions are reflected by antler growth, examination of the annual deer harvest provides indirect but highly valuable measurements of deer numbers relative to changing food conditions. In Virginia other information is collected during the harvest period to reinforce information obtained on antler growth. These data, such as weights of yearling bucks, percentages of fawns in the harvest, percentages of yearling does in the harvest, and age ratios of both sexes, reflect annual trends in quality as well as quantity of our deer population and are useful tools in the making of sound deer management decisions.

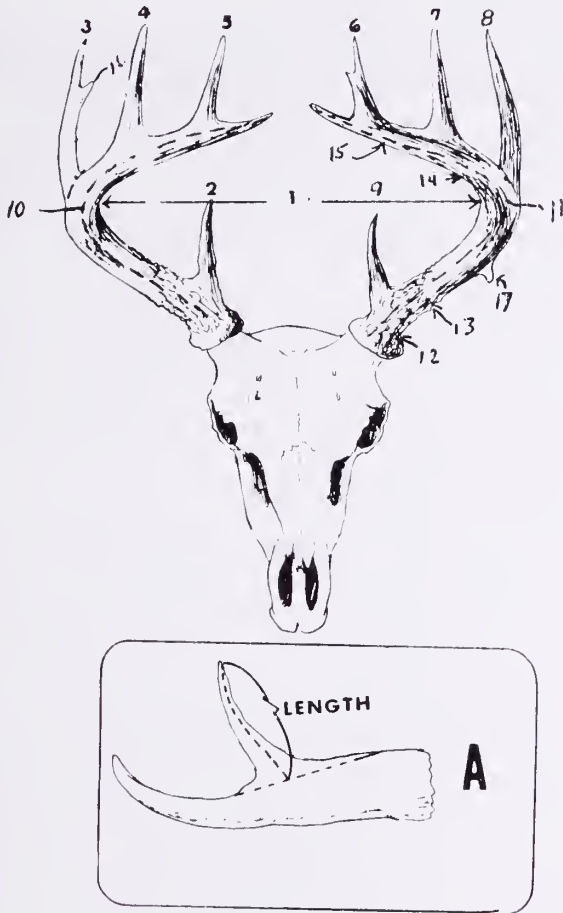
TABLE 1—Percentage Distribution of Virginia's 1966 Antlered Deer Harvest by Number of Antler Points

AREA	NO. OF ANTLER POINTS										
	1-3	4	5	6	7	8	9	10	11	12+	
Dismal Swamp	48	12	3	9	5	14	3	5	*	1	
Tidewater	34	15	8	17	7	12	2	2	1	*	
Northern Piedmont	29	15	6	14	8	15	5	5	1	2	
Southern Piedmont	27	12	9	16	8	16	5	4	1	2	
Northern Mountains	29	14	7	12	8	16	5	6	1	2	
Central Mountains	36	12	6	11	6	17	5	4	1	2	
Southwest	39	12	6	11	5	15	4	5	*	2	
State Average	35	13	6	13	7	15	4	4	1	2	

* Less than 1%

The breakdown of the Virginia deer kill into the various antler classes as shown in Table 1 shows that differences are very subtle between areas and most would not be considered different enough to represent anything more than random fluctuations. Generally the Tidewater, Dismal Swamp, Central Mountains and Southwest Virginia areas seem to produce a higher percentage of deer with 1 to 3 antler points than come from the Piedmont and Northern Mountains. Hunter pressure and hunter preference are undoubtedly reflected here also. The amount of either-sex shooting involved probably influences hunter selectivity also. The normal whitetail 2, 4, 6 and 8 point branching is reflected in the percentage figures but only about two-thirds of

How Does That Trophy Rate?



EACH year there are a number of impressive deer heads that are not entered in the State Trophy Contest because the persons who killed them feel they will surely be nosed out by a larger specimen. Consequently, one or more divisions are won by mediocre heads when larger racks are known to have been killed. In a true contest it is impossible to set up minimums for entry because average quality and number of entries varies markedly from year to year. The following procedure is recommended as a rough test for a prospective entry but is by no means intended to discourage entry of heads which do not measure up to these standards. All heads must be measured by an official measurer at the contest for final score.

To estimate the score of your head, add together (all measurements to nearest $\frac{1}{8}$ inch) the spread of the main beams (1) plus the number of points plus the length of all points and random prongs (2-9, 16 and 17—See insert A) plus the length of both main beams (10 & 11) and the circumference of both antlers at the burr and between all points (12-15). After totaling all these measurements and counts, subtract half the length of all abnormal points (such as 16 & 17) and one-half the difference between corresponding length and circumference measurements on one antler and those on the other.

If the rack scores 225 or better, have it officially measured for Boone and Crockett competition. (Max M. Carpenter, Route 1, Dayton, Virginia, is official measurer). If it has 9 or more points and scores 150 or over, or if it has 7-8 points and scores 100 or over, or if it has 6 or less points and scores 50 or over, it has a good chance of placing in the Game Commission's Big Game Trophy Contest.

The contest was started in 1941 and has been held annually since. Heads are first judged in regional competition at Harrisonburg or Newport News. The state contest is held in conjunction with one of the regional events alternating between eastern and western sites. Heads must be killed during the previous season to be eligible and the entrant must furnish the Big Game tag or an affidavit from the game warden certifying the entry as a legal kill.

State Big Game Trophy



- There are no advance entry forms. Heads or antlers must be carried or shipped to the proper regional contest where they will be officially measured and entered. Bear skulls only need to be entered in state contest.
- Prizes for regional winners
- Trophies for first place State winners in each Division
- plus Honorable Mention Certificates

Contest

The east-west regional dividing line will follow the east-west deer season line in effect the year the entry was killed.

WESTERN REGIONAL CONTEST

October 31, November 1 & 2
William G. Myers Armory
Harrisonburg, Virginia

For entry details contact
Kermit Dovell
955 South High Street
Harrisonburg, Virginia
(Phone 434-3272)

Sponsored by the
Harrisonburg-Rockingham
County Izaak Walton League

STATE CONTEST

November 2
William G. Myers Armory
Harrisonburg, Virginia

Virginia
Commission of Game and
Inland Fisheries

Only animals first entered
in regional competition are
eligible

EASTERN REGIONAL CONTEST

October 19
Deer Park Elementary School
Route 17 and Jefferson Avenue
Newport News, Virginia

For entry details contact
E. N. Vandembree
41 Sinton Road
Newport News, Virginia
(Phone 596-4105)

Sponsored by the
Peninsula Sportsmen's Assn.

Virginia deer have these normal racks with even numbers of points. It is also interesting to note that there are more eight pointers bagged than either 4 or 6 pointers for the state as a whole, perhaps reflecting hunter selectivity. As stated elsewhere in this article, the number of antler points is only generally related to age.

The relationship existing between the animal's nutritional level and antler development can also be seen illustrated in the kill statistics compiled in other states. On Michigan's northeastern Lower Peninsula, where food shortages are the rule, 70 percent of the yearlings are spikes.

In contrast, the food-rich southern counties produce only 5 percent spikes, the remaining yearlings producing Y's or better.

It is obvious from the data presented that the maintenance of an adequate food supply is of paramount importance in both developing and maintaining optimum antler growth. The statistics further illustrate the importance of keeping the deer herd in balance with its food supply. Unlike the pheasant and cottontail, members of the deer family are capable of destroying their own range before any major mortality occurs. This results not only in fewer animals and submarginal antlers, but far more important a habitat so severely damaged by over-browsing that its capacity to support deer in significant numbers can be destroyed for generations.

Occasionally, nature produces oddities which confound both sportsmen and biologists alike. One of the more interesting examples is the antlered doe. This condition is quite rare, with Michigan reporting a ratio of 1 antlered doe to 20,000-30,000 bucks. However, this condition undoubtedly occurs more frequently than these figures seem to indicate, due to the fact that specimens are not reported to wildlife authorities.

The antlers exhibited by white-tailed does are of two distinctly different types, those which remain in the velvet and those which are polished. The former is much more common, the antlers being small, asymmetrical and never shed. Does displaying this form of antler anomaly are normal in every other respect and capable of bearing young.

Biologists attribute this condition to an abnormal secretion of the male sex hormone, testosterone. This substance suppressed the hormonal products produced by the ovaries, which normally inhibit antler development in the female. Antlered does have been produced experimentally by injecting animals with testosterone propionate.

A much rarer form of the antlered doe is characterized by hard, well developed, polished antlers. These animals are infertile and classed as either true hermaphrodites (possessing both male and female sex organs) or pseudo-hermaphrodites. A 6½-year-old Pennsylvania specimen, examined by staff members of the University of Pittsburgh and the Carnegie Museum, weighed 110 pounds dressed and possessed well developed, polished antlers with 4 points on the left and 2 on the right. Necropsy revealed a non-malignant adrenal tumor located in the lower portion of the ureter, composed of the type of cells which are known to produce a masculinizing effect in the human female.

As interesting as a doe with antlers is a buck without them. Perhaps even more so to the sportsman who may have bypassed a shot at an adult buck, because the absence of his regal headgear made it appear an exceptionally large doe. The absence of antlers in the mature male is usually the result of either old age or accident. The latter is the

much more common cause, since few reach the advanced age necessary to produce this condition. Bucks, 10 years of age or older, often do not produce antlers due to inefficiency of the sex glands.

Castration at any time following the loss of velvet will cause the antlers to drop, resulting in abnormal development the following year. Animals with this condition are known commonly as cactus bucks.

Occasionally, a buck will retain the velvet covering on the antlers well beyond the season when it would normally be shed (September). This again is the result of hormonal insufficiency, either through injury or incomplete development of the sex glands.

The occurrence of three or more antlers on the same animal has been reported from numerous areas. A Canadian whitetail was found with a third antler originating from the nasal bone just behind the nostrils. Even more unusual is the report of a Montana buck which developed an additional antler below the right eye!

AS A TOOL IN MANAGEMENT—

The use of the antler as a tool in the management of deer populations is still in its infancy, with considerable research, both in the field and laboratory, required before its value can be fully realized. However, at our present level of understanding, a definite correlation between antler growth, age, and habitat condition is known to exist.

The ability to separate individuals of a population into given age classes is of major importance in determining the productivity of the herd so that sound management recommendations can be made. Antlers have been used by sportsmen as a criterion of age for many years, and though far from being the ultimate answer to a biologist's dream, they have proven to be of some value in management.

Degree of branching, length, and number of points and beam diameter are rough indicators of age. Generally, the more points the older the deer, but there is no direct correlation. A 6-point buck is not necessarily 6-6½ years old. A yearling inhabiting good range may have 10 points, while a 5½ with poor food may be a 4-point.

In our Virginia investigations we have been using the number of spike bucks found in the yearling-buck age class. That is, we count the number of yearlings (those bucks 1½ years of age) having antlers totaling two points, and compare this with the number of yearling bucks having more than two points. If we have a sample of 100 yearling bucks with 50 of them having antlers totaling two points, then this is called 50 percent spikes. Herds with 100 percent spikes in the yearling groups are found occasionally. Yearlings in the very best ranges average about five percent spikes. In Virginia, in an effort to compromise between quality and quantity, we have been striving for averages of 30 percent spikes or less in the yearling-buck age class.

In spite of imperfections as an aging technique, beam diameter measurements have a degree of value in measuring the productivity of deer habitat. Marginal deer range providing limited, low quality browse produces antlers with smaller basal diameters than areas which are rich in native food plants. Thus, these measurements indicate to the wildlife manager those areas where overpopulation and/or poor habitat conditions warrant herd reduction or more intensive habitat development (usually both).

Volumes could be written concerning the majestic head-dresses of the Cervidae, but here we must be content with but a brief introduction to this complex and interesting subject.

VIRGINIA WILDLIFE

CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

NEARLY 8,000 ARRESTED FOR GAME LAW VIOLATIONS. A total of 7,966 persons were arrested for various violations of the game, fish and boat laws during the 1967-68 fiscal year. This is slightly above the 7,844 arrested the previous year. Fishing infractions again led the list with 4,076 apprehended, a marked increase over the previous year's total of 3,385. Hunting arrests totaled 2,692, down slightly from the previous year. The 1,184 arrests for boating violations were about the same as last year's record.

Fishing without a license was still the most common violation, accounting for more than one-fourth of all arrests and over half of the fishing cases. Operating a boat without the required life preservers was next, followed closely by hunting trespass cases. Hunting without a license, fishing trespass, and hunting during closed seasons were also leading offenses. A total of 273 persons were arrested for violations of the migratory bird laws with shooting over bait the leading offense, followed by shooting after hours.

One hundred-sixty five persons were arrested for spotlighting deer. Unplugged guns and other illegal weapons resulted in the arrest of 151 hunters. Size limit violations prompted the arrest of 180 fishermen, mostly in the Smith Mountain and Shenandoah River areas. Fishing during the closed trout season proved costly to 126 more. Next to life preserver violations, the boaters' most common mistake was not having the boat registration certificate on board. Improper numbering was another leading cause of arrests.

APPLICATIONS TO BE ACCEPTED FOR BACK BAY HUNTS. The Commission of Game and Inland Fisheries will accept applications for blind reservations at its Trojan and Pocahontas Waterfowl Management Areas through October 25. A drawing for reserved dates during the coming waterfowl season will be held October 28.

Application forms can be obtained from the Game Commission's Richmond office. Each application submitted must be accompanied by the \$3.00 blind fee. Hunters on the Pocahontas Area will have to pay an additional \$20 guide fee on the day of the hunt. Blinds on both areas can accommodate up to 3 hunters each. Both areas will be open daily except Sundays from November 18 through January 6.

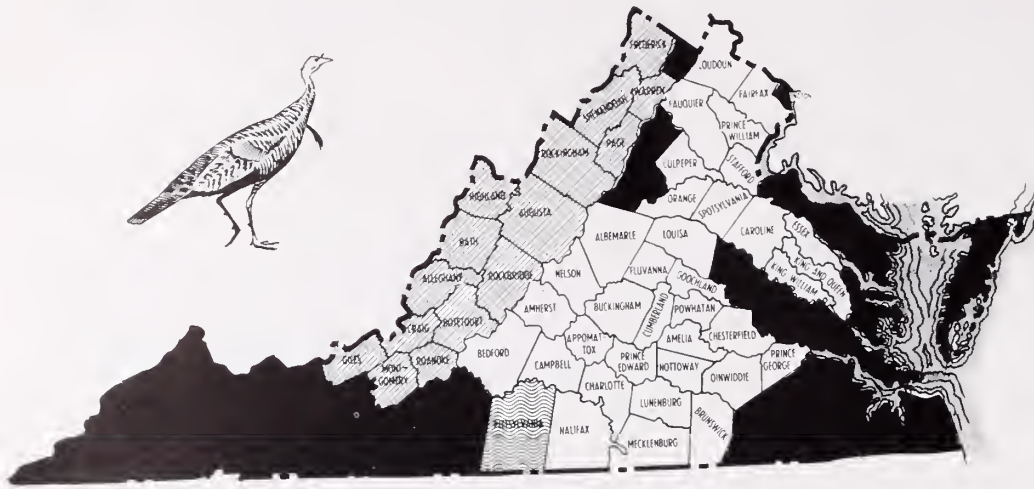
After choice dates are assigned by the drawing, other available dates will be booked on a first-come first-served basis. Hunters on the Trojan Area must furnish their own boat and decoys but on the Pocahontas Area the Commission provides guide, boat and decoys for the \$23 package price.





VIRGINIA GETS LATER WATERFOWL SEASONS. A 50-day duck season that will allow duck hunters to pursue their sport until January 15, a week later than last year, has been approved. The duck, coot and gallinule season was set to open November 27 and close January 15. The goose and brant season will open November 16 and close January 24, some two weeks later than last year. More liberal outside dates in the framework handed down by the U. S. Fish and Wildlife Service made the later seasons possible.

Duck hunters will be allowed 3 ducks per day, not more than two of which can be mallards, black ducks or wood ducks, although a mixture of these species will be permitted to make up the daily bag of 3. The daily bag may include only one canvasback or one redhead, but not one of each. Other daily limits are 10 coots, 15 gallinules and 5 mergansers, including only one hooded merganser.

Goose hunters will be allowed 2 Canadas daily except at Back Bay where they will be limited to a 50 day season and 1 goose per day. The Back Bay goose and brant season will coincide with the duck season dates. Similar restrictions will be in effect in North Carolina. The goose population in this area has been declining and federal officials felt it would no longer stand the gunning pressure of past years. The daily limit on brant was set at 6.

1968-69 Turkey Seasons and Limits








-  November 4–December 17 – Two of either sex per license year.
-  December 16–January 15 – Two bearded turkeys per license year.
-  November 18–January 31 – Two bearded turkeys per license year.
-  CLOSED TO FALL TURKEY HUNTING.

NO MORE THAN ONE TURKEY MAY BE TAKEN IN ANY ONE DAY

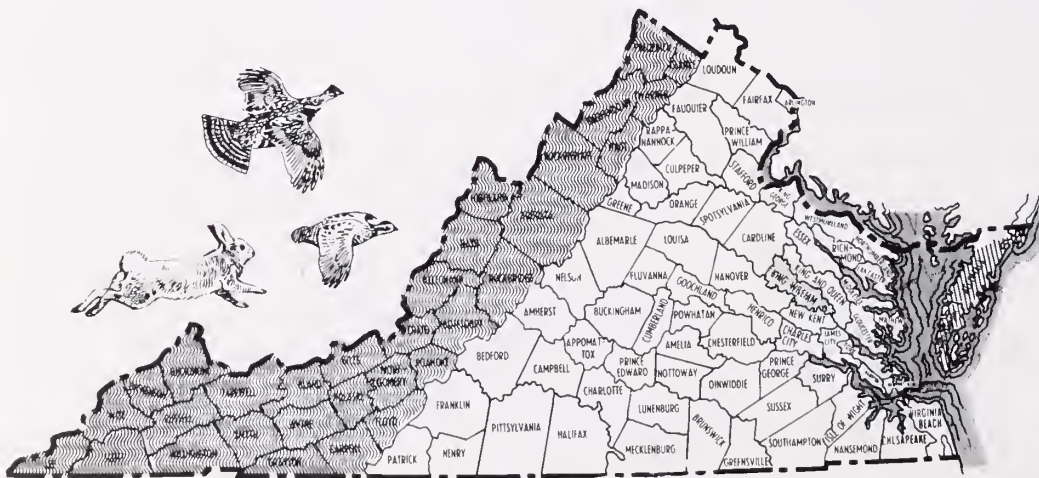
BAG LIMIT: 6 per day, per license


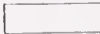




-  October 1–14, November 4–14
-  October 1–14, November 18–31
-  September 1–14, November 18–31
-  September 16–30, November 18–31
-  November 4–January 31

- (A) September 1–14, October 1–14
- (B) October 1–14, November 18–31

1968-69 Rabbit, Grouse and Quail Seasons and Limits



-  November 4–January 31 (Rabbits and Quail) : November 4–February 28 (Grouse)
-  November 18–January 31 (Rabbits and Grouse) : November 18–February 15 (Quail)
-  November 18–January 15 (Rabbits) : November 18–February 15 (Quail)
-  November 18–January 31 (Rabbits, Quail and Grouse)

BAG LIMITS:

Rabbits: 6 per day; 75 per license year.
Grouse: 3 per day; 15 per license year.
Quail: 8 per day; 125 per license year.

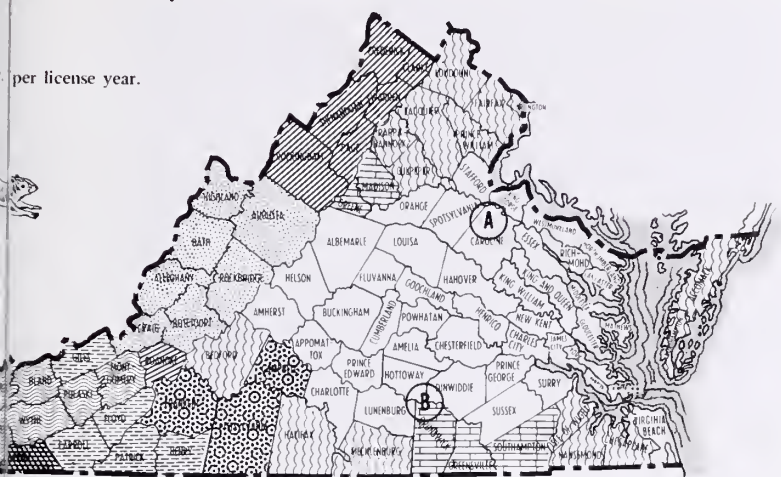
1968-69



-  October 1–14, November 4–14
-  October 1–14, November 18–31
-  October 1–14, November 18–31
-  Continuation of previous seasons

1968-69 Squirrel Seasons and Limits

per license year.



November 4–January 31 September 16–October 14, November 18–January 31

November 18–January 31 November 18–January 31

November 18–January 31 September 16–October 14, November 18–January 1

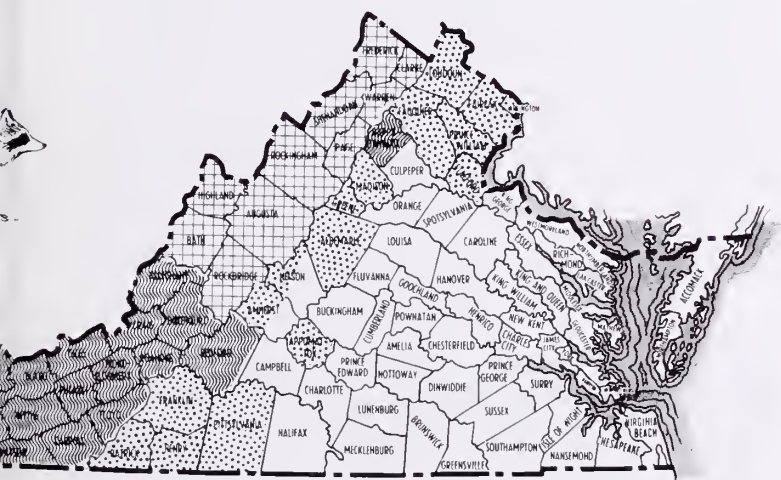
November 4–January 31 September 16–30, November 18–January 1

January 31

September 16–October 31 – on Camp A.P. Hill Military Reservation only.

November 4–January 31 – on Camp Pickett Military Reservation only.

1968-69 Raccoon Seasons and Limits



November 4–January 31

November 18–January 31

March 10

open season—

November 4–January 4–on National Forests and Game Commission lands West of the Blue Ridge
November 18–January 31 – on National Forests and Game Commission lands East of the Blue Ridge.

Regulation Roundup

(Continued from page 4)

Special seasons for sika deer and whitetails will be held on Assateague Island, for archers only October 16-19, and for archers and shotgunners October 25 and 26. The bag limit will be one of either sex. Hunters who take either a sika or whitetail deer during these hunts must count it against their season bag limit, and can legally take another deer only in a county having a two-deer season limit. Regular tagging and checking regulations apply to these special hunts, and successful hunters will be required to attach the number 1 tab from their big game license to their deer. Number 2 tabs are not valid in a county having a one-deer season limit, and the tabs must be used in sequence.

The statewide bear season beginning November 11 and ending December 21 does not apply in the Dismal Swamp and in the 9 southwest counties where bear seasons are established by Legislative Act.

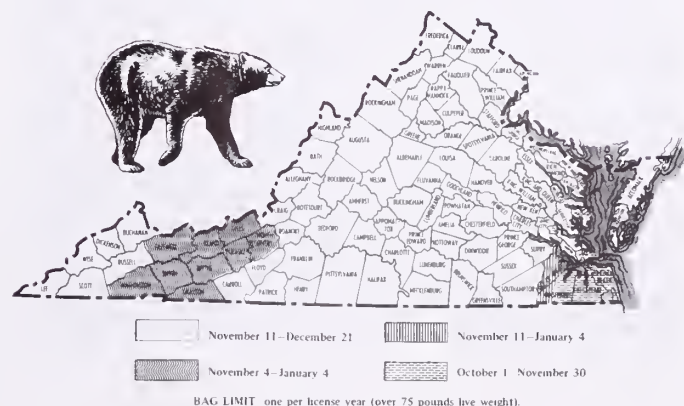
The November 4-January 4 raccoon season on National Forests and Game Commission lands west of the Blue Ridge will give raccoon hunters two additional weeks of hunting on these areas.

WATERFOWL SEASONS LATER

Duck hunting regulations will allow waterfowlers an extra week in January to work on the late arriving diving ducks that ordinarily do not concentrate on their Virginia wintering areas until near the year's end. The duck and coot seasons will open November 27 and close January 15, while the goose and brant seasons will open November 16 and close January 24, *except in the Back Bay area where the opening and closing dates will coincide with those of the shorter duck season.* Wintering geese in the southern part of the Atlantic flyway have been declining, although the goose population of the flyway as a whole has not, and therefore the goose season from North Carolina southward has been set this year at fifty days with a one-a-day bag limit. Since the geese that winter on Virginia's Back Bay are part of the same population that uses North Carolina's Currituck Sound, both the shortened goose season and the restricted bag limit were made applicable to the Back Bay area while the more liberal regulations that apply to the northern portion of the Atlantic flyway will govern elsewhere in Virginia.

Waterfowl daily bag limits are set at 2 geese (except in the Back Bay area), 10 coots, 5 mergansers, and 3 other ducks including not more than one each of mallard, black duck and wood duck and not more than one canvasback or redhead but not one of each of the latter two species.

1968-69 Bear Seasons and Limits



November 11–December 21 November 11–January 4
November 4–January 4 October 1–November 30

BAG LIMIT one per license year (over 75 pounds live weight).

The Ducks Unlimited Story

(Continued from page 5)

exemption for contributions to DU's ambitious programs of reclaiming and preserving the prime waterfowl breeding grounds. To actually construct the projects, and to handle the many facets of such a gigantic building program, a companion Canadian corporation called Ducks Unlimited (Canada) was formed, under laws of the Dominion.

Needless to say, DU was sternly faced with problems of immense proportion when dirt was turned on its first wetlands project, Manitoba's Big Grass Marsh, in 1938. Even though a serious depression lingered in both the U. S. and Canada, the determined outdoorsmen pulled up their boots and waded in. To the wholehearted support of American sportsmen was added the invaluable cooperation of Canada's provincial and dominion governments, plus that of ranchers, landholders, communities and industries, who generously granted long-term land leases on wetland areas.

The result—a program of truly international cooperation in conservation, in a brotherhood that has been unrivaled anywhere. The noble cause of Ducks Unlimited—pioneering in the wise conservation of North America's valuable waterfowl resources—has, from the very beginning, been championed by sportsmen who have made the future of our ducks and geese the concern of all, from the highest government agency to the "one-gallused" hunter.

Since this extraordinary conservation movement was initiated some three decades ago, Ducks Unlimited has led the way in the perpetuation of waterfowl, utilizing all facilities at its command to restore, preserve and create nesting habitat for ducks and geese. DU has expended over 12-million dollars to plan, build and develop over 800 "duck factories," as its projects are appropriately called by sportsmen and wildlife officials. All told, since work first began in 1938, over 1,000 water control structures such as dams, dikes and levees have been constructed. Today, Ducks Unlimited has, under lease, over one and a half million acres of prime wetland habitat, with total shoreline (a vital ingredient of top quality production) measuring over 8,000 miles.

DU's water control projects range from valuable small units of less than 50 acres to huge marshland complexes up to a half-million acres in area. Field surveys are currently underway on one of the largest and most ambitious programs ever tackled—the 512,000-acre Mawdesley Wildlife Development, called the Del-Mar Project, near The Pas in Manitoba.

While the majority of projects are built in the rich prairie provinces of Manitoba, Saskatchewan and Alberta,

Ducks Unlimited production units stretch across Canada, from the Serpentine River Flats Project in southwest British Columbia to the prime 6,000 acre Delaware State Project at Missaquash Marsh, on the border between Nova Scotia and New Brunswick.

Many of DU's project units have been named to honor conservation leaders while others, financed by sportsmen and DU Committees, bear the names of states, cities and individuals. Across the breadth of the Dominion, these "Donor Lake" projects are readily identified by sturdy commemorative cairns, bearing bronze plaques noting the names of donors.

In conjunction with the wide-ranging construction program, hundreds of miles of fencing have been erected to protect nesting areas; many miles of fire lanes are maintained to thwart devastating marsh fires. DU (Canada's) highly trained biologists and engineers regularly inspect projects, evaluating production, supervising planting of aquatic food plants, and directing the numerous other tasks essential to insuring top utilization of the areas. Field crews have banded over 140,000 ducks and geese as part of the continuing wildfowl research studies.

Over the thirty years of its progressive achievement, Ducks Unlimited has raised a total of well over \$15 million in contributions from concerned sportsmen and organizations in the U. S. and Canada. Needless to say, DU is justly proud of the fact that, since its founding, almost 80¢ of every contributed dollar has gone directly to Canada to be judiciously spent in the never-ending battle to preserve, protect and restore the all-important waterfowl breeding grounds.

The distinguished record compiled by Ducks Unlimited over the years stands as a concrete tribute to the unselfish efforts of the devoted sportsmen-conservationists who, in reality, *are* DU. Among its officers and trustees, now and over past years, are leaders in business, industry, the professions and, most of all, conservation. While serving without compensation, their full satisfaction comes in the vital role they play in preserving our precious waterfowl inheritance. Approximately 35,000 persons are members of DU, yet millions enjoy the benefits of this valuable natural resource. Every hunter who treasures his sport, and every person who shares the thrills of watching waterfowl, owes a real vote of gratitude to those who have borne the responsibilities of helping perpetuate the continent's ducks and geese.

A look at DU's outstanding chronicle of conservation achievement makes it easy to understand the great pride each Ducks Unlimited member takes in his association. This progressive record is most certainly deserving of full support



Left: Dry conditions have reduced many of Canada's prime prairie duck nesting areas to useless expanses of cracked mud and dead vegetation. In years like 1968, Ducks Unlimited's projects (right) are literally "life-savers" for the ducks.



Ducks Unlimited photo



Ducks Unlimited photo
An evening flight of mallards over a Ducks Unlimited project.

from every duck-hunter.

DU has clearly illustrated, by example, that the rehabilitation of prime nesting grounds across Canada is a vital factor in the preservation of our waterfowl—and in the process has achieved the equally important goal of instilling a solid awareness among citizens and government agencies alike (on both sides of the border) of the urgent need for wise conservation programs.

With the return of abundant water to the primary breeding regions, Ducks Unlimited is faced with a highly unusual opportunity and challenge. Forging ahead with an aggressive "master plan" of project construction *now* will enable us to provide and protect much valuable habitat from future floods and drought.

The funds which are so necessary to accomplish this long-range goal must be raised, in large part, here in the United States, where sportsmen realize almost 75% of the continental waterfowl harvest. American outdoorsmen are not prone to sidestep their responsibilities in matters involving conservation, as witnessed by longtime support of DU and other worthy programs designed to protect natural resources. Several states have passed legislation setting aside a portion of hunting license fees for waterfowl conservation and, noting DU's fine record for making every donated dollar count, have granted these funds to Ducks Unlimited. There is bright optimism that several other states may soon follow in the progressive footsteps of such states as Louisiana, Ohio, North Carolina and South Carolina. There is also confidence that the waterfowlers of the U. S. and Canada will continue to recognize the critical need for their support of Ducks Unlimited's ever expanding efforts.

Through generous contributions of time, service and money to their local and State Committees, DU members are doing their part in enlarging their own memorable enjoyment for a day in their favorite marsh, while at the same time aiding the preservation of our priceless waterfowl heritage for their sons and grandsons to follow. The wise conservation of our waterfowl is the responsibility and obligation of all who thrill to the sight and sound of these noble creatures.

"Assisting nature to aid the birds to multiply must be the first consideration of all of us."

This significant quotation truly exemplifies the goals and purposes of Ducks Unlimited, in the past, the present and in years to come. With a helping hand from you and other sportsmen-conservationists, so will the noble and remarkable accomplishments of Ducks Unlimited continue into the unlimited future.

VIRGINIA GETS NEW DU CHAIRMAN

THE appointment of a new Virginia State Chairman of Ducks Unlimited, Inc., has been announced by officials of the continent's pioneering waterfowl conservation organization. Taking over the important volunteer position is Richmond attorney Alexander Wellford, Mr. Wellford, 38, assumes the chairmanship from Henry F. Stern, Richmond real estate developer, who will continue as Sponsor Chairman for the Virginia DU Committee. Mr. Stern was recently elected as an Honorary Trustee of the group.

Mr. Wellford, a lifetime native of Richmond, was graduated from St. Christopher's School and holds degrees of Bachelor of Arts and Bachelor of Laws from the University of Virginia. He is currently a partner in the firm of Christian, Barton, Parker, Epps and Brent. Mr. Wellford resides with his wife, Joan, and their four children at 4701 Augusta Avenue in Richmond.

The new state chairman has long been active with the Virginia DU Committee, serving on the Richmond Chapter as Treasurer and member for a number of years, before becoming State Treasurer two years ago.

As he accepted the new position, State Chairman Wellford observed that the past two years have shown tremendous growth of interest in Ducks Unlimited by sportsmen of the Old Dominion, with the commensurate increase in the amount of funds raised in the state for the organization's vital programs of building and restoring wetlands in Canada. Mr. Wellford stated: "The unselfish and untiring efforts of these sportsmen will no doubt establish Virginia as a major contributor to the work of Ducks Unlimited in preventing the extinction of waterfowl on this continent."

Wellford, recently returned from a survey trip of the waterfowl breeding areas of Canada, noted that in this dry year on the provinces the stabilized waters of DU "duck factories" are proving to be literally "life savers" for the ducks. While on the trip, the state chairman and other members of the state committee dedicated DU's "Lake Virginia," an outstanding wetlands area located in southwestern Manitoba. The project was built with the support of Virginia's DU members. According to Mr. Wellford, plans are currently underway for another special DU "duck factory" to be sponsored and underwritten by sportsmen-conservationists in the state.

Dale E. Whitesell, Ducks Unlimited's Executive Vice President, in announcing the appointment of Mr. Wellford, proudly noted that during 1967, Virginia contributed a total of over \$24,000 in support of DU's essential programs, with membership rising to a record 458.

If you would like to join in supporting Ducks Unlimited's vital waterfowl conservation program, please send your membership contribution of \$10.00 or more (tax deductible) to Virginia State Ducks Unlimited Chairman Alexander Wellford, 500 Mutual Building, Richmond, Virginia 23219.

Spare that dead tree!

By RUTH HIGBIE
Brightwood

ABOVE the pond stood an old silver maple. Half of it was dead. One black twisted branch reached skyward; another angled out to the side. The tree was unsightly and must be cut down, but with the press of other work we kept putting it off, though we could see the tree from the house, silently reminding us of a job to be done.

In the fall the topmost branch was the favorite perch of a shrike. At first we paid scant attention to him, thinking him to be just another mockingbird. But one day our oldest son noticed the narrow black mask through his eyes. After that he didn't look at all like a mocker in spite of his similar color and white wing patches. His attitudes and his big head were so different that we wondered why we hadn't recognized him immediately.

We kept watch, hoping to see him impale his prey on a thorn, but were never able to catch him in the act. I almost succeeded the day he flew up from a dogwood as I came near. I found a still soft grasshopper he had just stuck on a twig. Another time we came upon a dead salamander he'd left dangling from a spur on a crabapple tree.

We fell into the habit of keeping an eye on the bare branch of the maple. Once, the osprey who occasionally fishes our pond rested there for half an hour. Other visitors stopped on their way past, chief among them the pileated woodpecker flying from one woods to another.

Toward spring a bright-colored little sparrow hawk was the most constant occupant. When he hovered over the field we glanced voluntarily toward Heaven to see the string he must be suspended by. He could flutter for endless minutes in one exact spot as though tied there. Then he would make a clean dive to the insect he had been watching.

The other trees leafed out. Even the old maple filled its lower branches with green, but the sentinel post and the one low limb stayed bare. In May a pair of kingbirds arrived from the south and took over the top stub. Their tails showed lovely white fans as they darted off the perch after insects. A pair of blue grosbeaks came about the same time to inhabit the leafy part of the tree. They loved the ripening heads of barley which had sprung from the manure used on the grass by the house. We left it unmowed for the delight of seeing the pair feeding just below our glass-walled bedroom, he a brilliant metallic blue, she almost orange in the sunlight.

Meadowlarks called from the deep grass of the field, but we saw them best when they perched on the lower dead limb to deliver their piercing sweet song, heads lifted and golden breasts gleaming below triangular black bibs.

A pair of flickers investigated the dying trunk and brown thrashers built in a bush at its foot. In a nearby thicket a pair of mockingbirds nested. It was from the dead tip of the maple that tragedy descended on them. A sharp-eyed crow perching there saw the mother fly to her nest. Ponderous and black he dropped on it to eat the eggs in spite of the frantic dive-bombing attacks of the parents.

One day in summer my husband got out rope and his power saw. As he and our son started toward the tree the kingbird was on his favorite lookout post, a barn swallow rested on the lateral limb before swooping again over the



S. & H. Kimball, Melfa

An osprey rested in the dead tree between fishing expeditions.

pond, and two cardinals hopped nearby among the green and silver leaves.

As the humans approached the birds took flight, but from deep inside the trunk came a muffled pecking. The flickers had decided that the tree was ready for them and had already dug deep enough to be working out of sight in their cavity. The drilling stopped and a black mustached face looked out. With a flash of white and yellow the flicker flew away chattering.

As our son started to climb the tree he noticed another hole above the flicker's, made earlier by a smaller woodpecker. When he jarred the tree a dainty flying squirrel peered out of this hole, big eyes bright, big ears turned toward the intruder. His soft creamy white throat was pulsating.

The boy slid down the tree again. "Dad," he began. But his father was already coiling up his rope and backing away.

"Never mind, son," he said. "I've already decided that this tree isn't unsightly after all. In fact it's more full of things to see than any other on the place. No need to be so neat we destroy something the wild creatures love. A dead branch with a kingbird on it may be far more beautiful than a leafy one where you can't see him."

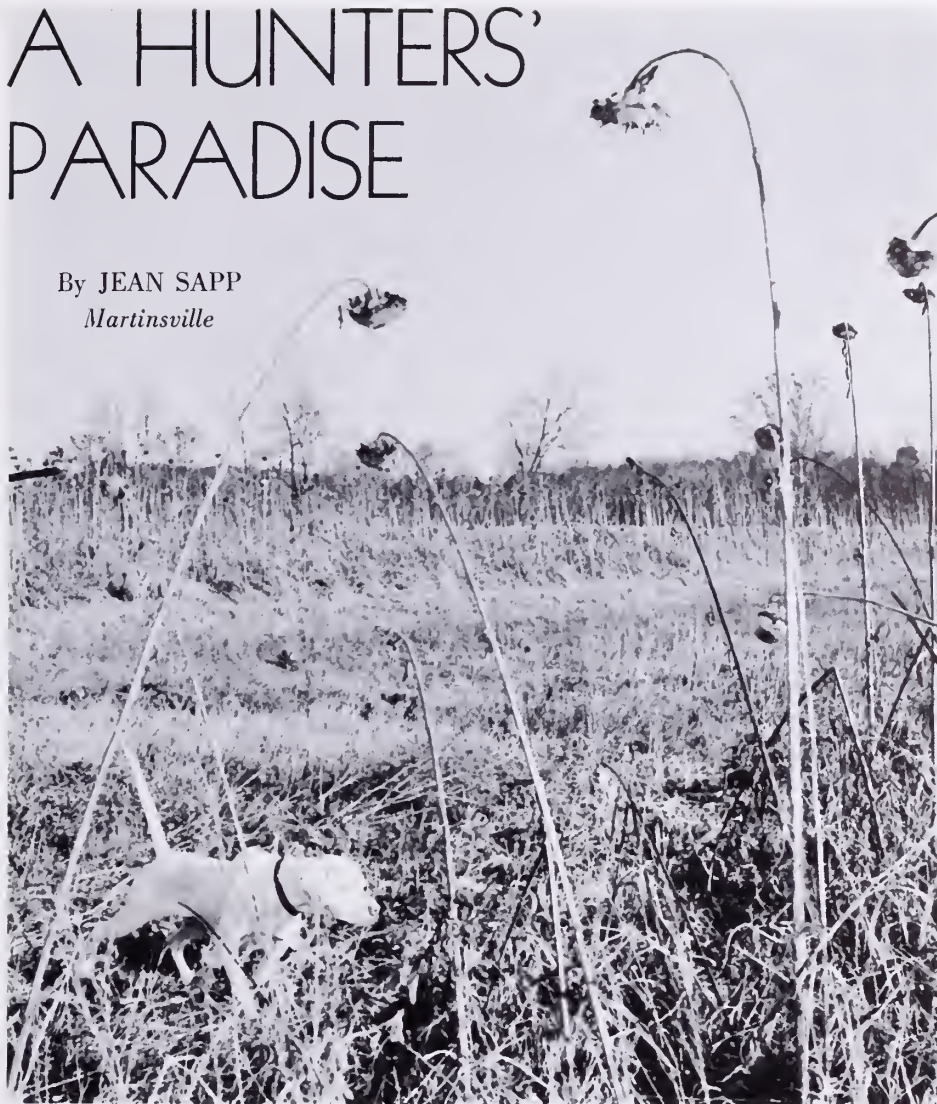


A dainty flying squirrel peered at the intruder, his white throat pulsating.

Game Commission photo by Kesteloo

A HUNTERS' PARADISE

By JEAN SAPP
Martinsville



A young pointer pins down a bird amid weeds and sunflower stalks on the Boxwood Farm game preserve.

Photos by Spencer
Studio, Martinsville

WE were delighted to read the article in the October, 1967, issue of *Virginia Wildlife* entitled "I Like Shooting Preserves," by Mr. Bill Cochran of Roanoke, as our latest interest in birds has been directed to a private game preserve on the Boxwood Farm near Axton, Virginia. My songbird watching has taken place at the moment to a multitude of quail, pheasants and chukar being raised in pens. The science of raising birds in captivity under the most natural possible conditions, in order for the birds to be healthy and active on the wing, has been improved recently, and is highly successful in that the mortality rate is practically nil in the pens among the young birds.

Due to the declining ratio of available wild game birds to hunters, as well as the limited time of the hunter, the preserve has been the answer for many, with an extra feature of safety, as the caretaker closely watches the placement of hunters over a large acreage. The beginner hunter, as well as the young sons of experienced hunters, find this arrangement more rewarding and interesting.

The birds are released hours before the hunters arrive and get the feel of a natural environment, thereby making the hunt as much like the pursuit of native game as possible. A few birds manage to escape the aim of the hunter, and they resume their natural existence from the evidence of coveys being found in our area. A pheasant was found several miles away from the preserve to the delight of our maid's young

son. He was never able to get near the beautiful bird. It was only when I mentioned the preserve that she, as well as other nearby residents, realized that they were not seeing things. There are now beautiful, heretofore unknown, birds in the wildlife community of our locale.

We recently had a unique experience when one of the workers on some land near the preserve called our attention to a quail in the gulley of the roadway. He was running ahead of us, obviously trying to distract us from his nest. Very eagerly, he wanted us to notice him as his instinct to draw our attention away from the vicinity of the nest.

Wildlife is being replenished by the preserves. This is not to belittle the marksmanship of our hunters, but to emphasize the sporting chance of the released birds raised in captivity as well as their ability to survive though raised in this manner.

Ground cover and feed are planted in planned areas all over 700 acres on the preserve. The beautiful, tall, once brilliantly yellow sunflowers now bow their large heads, dropping tasty seeds which all birds find a delicacy. Large beds of these flowers are plentiful and provide an attraction second to none for all birds.

Concerning the stocking of the preserve, it is interesting to note that young quail are purchased from nearby hatcheries and brought to the pens when they are about two months old. Pheasants and chukar were purchased the first

A Hunters' Paradise

(Continued from previous page)

Birds are released in the coverts to get the feel of the environment before the hunt begins. Beginning hunters usually find the shooting preserve hunt especially rewarding.



year but now lay eggs in captivity, and incubators are in operation to supply the demand for this season.

Of particular interest to me is the quail pen which is built in an old barn. Its high ceiling and wire sides give the young birds an excellent place to fly and develop their natural strength of wing. Their feed and water are plentiful and pine trees were cut and placed inside to give a realistic wooded atmosphere. The young quail are very interesting to watch as they run and fly about. At times they peck each other and even assume a fighting cock stance.

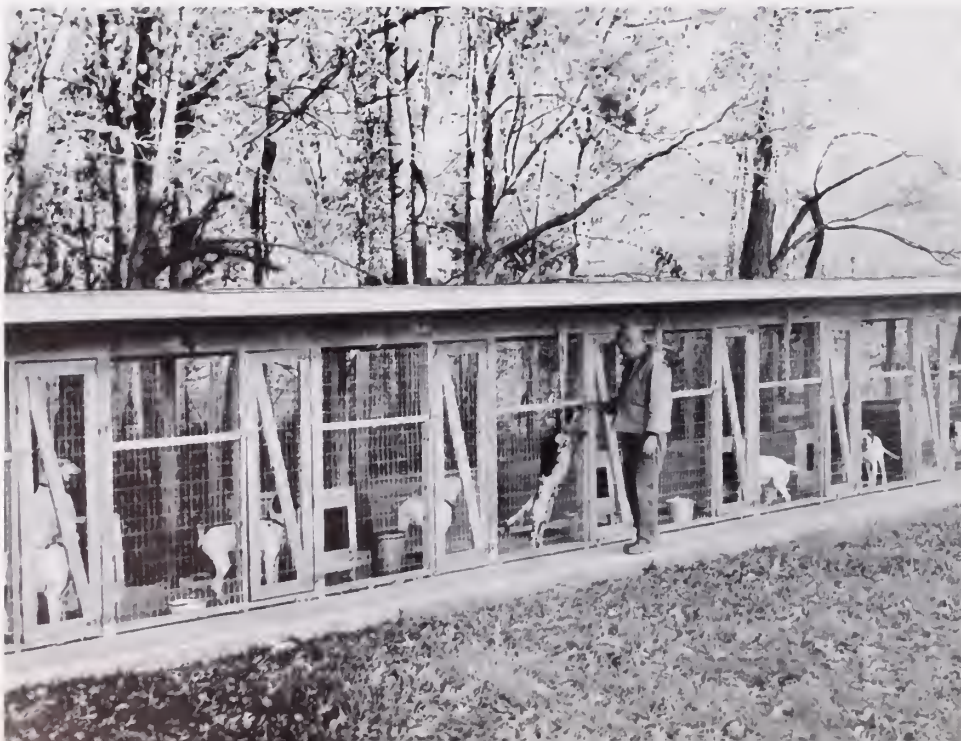
The chukar and pheasants are penned separately in wire enclosures with a house attached for protection, laying of eggs and food. They fly in the wire enclosure and seem quite healthy and content. Occasionally, when some escape the hunter, they find their way back to the pens to rejoin their own.

An added feature of the preserve, which is a blessing to many neighborhoods where barking dogs are the bane of

existence, is the kennel for member's dogs. The dogs have runs to exercise and are on hand for the hunt, rather than being driven to the scene. One member's wife is particularly delighted to have kennels, as when their dogs were kept at home, her husband came in from work, ran to pet his dogs before he spoke to her and the children. So the kennel relieves many situations which could be unpleasant.

There is nothing more vociferous than a hunting dog, and at times they are unfriendly, though generally not so. However, an avid hunter saying, "Love me, love my dog," is carrying it a bit far. Even if his family can take it, his neighbors may not. Kennels are a delight and a must!

The game supper is, as throughout history, a delicious treat. I believe the chukar is the tastiest to me; but if I get more attached to observing the birds in captivity, I may find myself like the caretaker who often says that he couldn't eat one of the birds for all the world. "They are just like my children—I love them all!"



Inhabitants of the dog kennels eagerly anticipate feeding time. Kennels available on shooting preserves are a boon to many urban sportsmen who do not have the facilities to care for their hunting dogs at home.

Vision and Hunting Safety

(Continued from page 6)

ferre drastically with color perception.

Many hunters who ordinarily wear glasses set them aside when they hunt, because they "get in the way." A hunter who has been told to wear glasses should wear them. Lenses which resist impact and breakage are now universally available. They resemble ordinary lenses but provide greater protection from flying shot, tree limbs, and other hazards. All hunters who wear glasses, including sunglasses, should be sure they have protective lenses. It is true that dust, water and snow are a bother, because they collect on the lenses. This problem can be overcome effectively by use of any of a variety of commercial lens-coating agents.

Except in extreme cases, a visual problem does not mean that a hunter must give up his sport. Every hunter should, however, have a knowledge of his own visual capacities, and take precautions to hunt within those bounds. Hunters who cannot see well at dusk or on dreary days should govern their activity accordingly.

The only way to make sure that one qualifies on all counts, is with an annual vision examination by a professional vision specialist. Just as hunting licenses are renewed yearly, the skills behind them require regular check-ups.

A few precautionary measures regarding vision can increase hunting success and make your hunting more rewarding for yourself, and safer for those around you.

This is no time for blurred vision. Hunters who have been advised to wear glasses should wear them when they hunt.



Let's Cook a Brunswick Stew

(Continued from page 7)

If you have used an attractive copper or one of the newer enameled kettles to cook in, bring the stew to the table as is; otherwise use an earthenware or ironstone casserole. This is hearty fare and deserves a hearty country stage set. One charming colonial tavern that we frequent serves Brunswick stew (albeit made with chicken!) in shallow pewter soup plates. Checkered linen napkins, large enough to tuck under the chin and still cover the lap, are "served" along with it.



The main ingredient. It does not take many squirrels to make a mouth-watering Brunswick stew.

A crisp salad of seasonal greens and thick slices of freshly baked bread, still warm from the oven, are all the extras necessary.

Smithfield Brunswick Stew

Whenever we have a Smithfield ham, the hock is earmarked for the stock pot. Sometimes it makes the base for a grand "old country" split green pea puree. Often it "starts" a Brunswick stew, which may or may not be my own invention. As of this writing I cannot remember ever having seen a recipe that recommends the addition of ham to a Brunswick stew, but with all the good cooks in Virginia it seems pretty certain that some of them have done this before. Along with the bone-in ham hock, cook the available number of squirrels which have been handled exactly as described in the first recipe. DO NOT add any salt or pepper, but otherwise proceed as above right up to the point where the canned tomatoes were added. Stop there, and instead of adding canned tomatoes substitute enough canned Italian tomato paste to thicken the broth to the desired consistency. Start with 1 tablespoon and stir in this amount completely before adding more. No bread crumbs will be needed. Finally add the ham, cleaned of fat, bone and gristle, and the boned meat from the squirrels and finish as in the first recipe.

Somehow the ham flavor in this version of the stew seems to call for a basket of hot biscuits, dripping with plenty of butter and served with a spot of mildly flavored honey. We get ours from a farmer in Charlottesville. If our trip up there has been a fairly recent one, there may also be fresh cider to serve—REAL cider, cloudy and tart with no added preservatives to dull its "apply" goodness.

There is nothing quick about preparing Brunswick stew. It takes long, slow cooking to make it right, and as with all stews and chowders, it is even better reheated the next day.

BLUE AND THE BIRD

By WARREN R. FITZGERALD

Warrenton

BLUE had fairly regular habits for a semi-tame cat of the suburbs. Like most cats he would prowl at night among the scattered houses and unsold lots of his neighborhood. During the daylight hours he slept and lolled about or made short, desultory hunts in the nearby lots. His guardians—you couldn't call them his owners, though they had known him since he was a kitten—provided him with a big meal late in the afternoon of each day. And early each morning they produced a light snack if Blue happened to be around and seemed hungry, as he usually was.

Blue's environment had made him semi-tame—or semi-wild, depending on how you want to look at him. The easy, satisfying meals waiting for him each afternoon kept him from becoming entirely wild. He would still catch a few mice and young rabbits in the empty lots, but that heavy evening meal kept him from being an ambitious or needy hunter.

Whatever the season Blue was in the habit of arriving at his guardians' back porch just as they were finishing breakfast. As a rule Blue had been at the farther ends of the suburbs where there were more empty lots and fewer houses. He had a lightly beaten trail he followed across the empty lot to his guardians' place. Each morning and again in the late afternoon Blue could be seen leisurely crossing the grassy plot. He traveled slowly, stopping at times to investigate with his finely developed senses the sights, sounds, and smells that met him. But normally there was nothing unusual to detain him.

That is, not until this spring. Some shake-up in the kingdoms of the birdworld brought an aggressive bird to claim the territory through which Blue traveled each morning and late afternoon. The tranquility in Blue's trips across that grassy lot next to his guardians' home ended, for a while. He still traveled the trail formed by his own feet, and at the same times a day, but for weeks it became a trail of torment.

Each time Blue entered the small field the bird met him and harassed him at every step, shrilling and darting about him with grace, arrogance, and near impunity. The bird would dive from a height at Blue's rear, zoom up over his head, and screech out bird epithets. It would flutter over Blue's unturned head, arousing admiration for its courage and agility in those who saw the performances. Sometimes it would perch in one of the small bushes on the lot and continuously screech as the unhappy Blue passed nearby. At other times it would light briefly upon the grass just out of range, and taunt him in a low, piercing voice.

Blue did not know why that bird pestered him so. All birds fascinated him, but he had never caught one, though he tried often enough. He lacked the desperation of the truly wild cats, and he had not acquired the skills of an older, more experienced housecat.

Blue tried to ignore the bird and from most appearances he did. He still ambled along, seemingly oblivious to the

swooping, perching, shrilling bird. His bearing when crossing that lot became especially regal, and in turn he was admired for his self-control and disdain for such bad behavior on the part of the bird, a newcomer.

There were times, however, when Blue showed that he *was* conscious of the bird's presence, but only those who knew him and his habits were aware of it. Occasionally while crossing the lot Blue would wander off the trail and lie down in the reclining, watchful pose of all cats. From that position he would turn his eyes upon the busy bird and watch it through narrowed pupils. He seemed to view the bird as a nuisance, not to be bothered over for more than a moment, for he would quickly be up again and back on his trail.

But one other quirk betrayed Blue to those who know cats, and to them plainly showed the agitation in his mind: his tail jerked nervously from side to side as long as the bird attacked. His guardians were amused by the intense bird-and-cat relationship, but were also concerned for the cat, for they understood that the switching tail was evidence of distress.

Blue continued on his regular daily rounds and the bird became more audacious in its attacks. Its favorite move was to dive down upon Blue directly from the rear. It would sweep down almost to the ground and dart over Blue's long tail and then pull up sharply just before touching Blue's rump. Sometimes it seemed it actually would peck at Blue's rump, but if it did Blue never gave an indication of contact. He always kept going and to the casual observer apparently was unaware of any intrusion.

But things were going on in Blue's mind: instincts were awakened, and probably even he was not aware of it. Blue's mind was collecting and storing information. He heard the bird's calling and could tell accurately how far away it was and in what direction it was traveling. His mind began to decipher the flight of the bird: the beat and flutter of the wings; the susurrous passage of the bird's wide-set wings as it sailed upward over his head at the end of each of its bold swoops from the rear. In time he knew better than the bird the rhythm in its attacks.

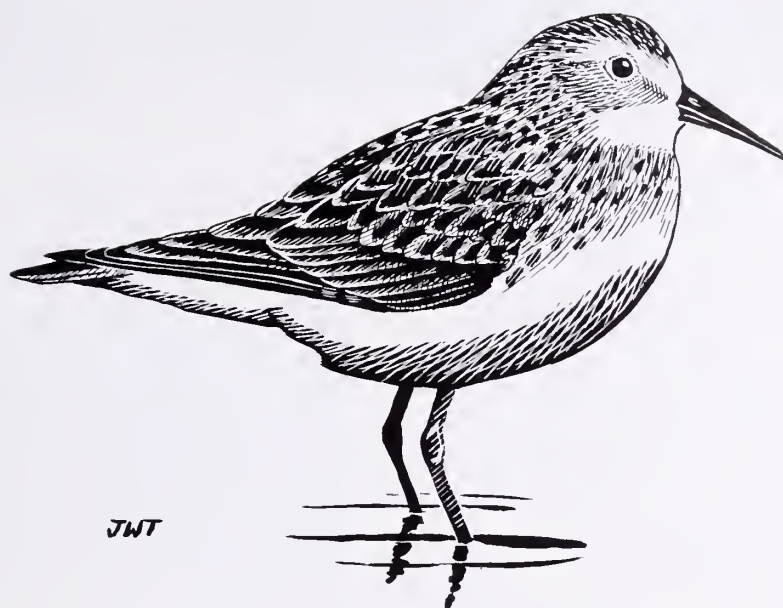
Blue endured the daily attacks through the weeks of spring. But one morning in late spring when the sun was making an unusually fast job of chasing away the patches of morning fog, and bird-song was dying out, Blue entered the lot at his regular hour, on his way to a snack at his guardians' kitchen door. As usual he was met by the bird, and it began to go through its repertoire: fluttering, shrilling, and repeatedly swooping down from behind and shooting straight up over Blue's head.

Near the middle of the lot, where it is clear of all but short green grass, the bird made another diving attack from the rear. As it approached the ground and set its wings for the skyward swoop, things clicked in Blue's mind, and his built-in computer told him everything was exactly right, and he reacted without thought.

Blue turned and leaped, his front legs wide stretched and reaching high, claws extended, padded feet seeming twice their normal breadth. One foot hooked a wing and the gaping jaws, rimmed with white teeth and fangs, snapped shut, crushing the bird's head. It died instantly, without struggle.

Blue held the lifeless form for a few seconds and then crouched and ate it—all of it but a few wayward feathers and remnants of less desirable parts.

Blue's guardians wondered at his failure to show up for his morning snack, and they were concerned when he hardly touched the big, late afternoon meal they put out for him.



Bird

of the

Month:

Least Sandpiper

By DR. J. J. MURRAY
Lexington

THIS little bird is properly named, both by its common title and by its scientific name, *Erolia minutilla*. The smallest of our sandpipers, it only runs from 5 to 6¼ inches in length. The species which is nearest to it in size is the semipalmated sandpiper, which is about half an inch longer. This is scarcely enough to notice in the field, especially since all the species of sandpipers have considerable individual variations in size. There are differences in coloring which are easier to distinguish. And if the bird is in hand, it can be separated from the semipalmated sandpiper by the fact that in the least there is no web between the bases of the toes.

There are other small sandpipers, the western, Baird's, and white-rumped, which run from the size of the least up to 7 or 8 inches in length. These little species of sandpiper are collectively known as "Peeps."

As Roger Tory Peterson says in his invaluable book, *A Field Guide to the Birds*, the least sandpiper has yellowish or greenish-yellow legs, while the legs of the semipalmated sandpiper are blackish. It also has a thinner bill, a point which may be noted when the two species are seen close together.

The least sandpiper is chiefly a transient in Virginia, although scattered individuals may be found at any time of the year. It is an abundant migrant on the Eastern Shore, is common at Cape Henry, and occurs at least sparingly all

over the state. It is more common around Washington in fall than in spring, although, oddly enough, the reverse is true at Lexington. My records indicate that the bird is not nearly so common in southwest Virginia, although this may be changing with the opening of so many lakes in that area.

The least sandpiper is more apt to be seen farther up from the water than the semipalmated and in the muddy flats, although the two birds commonly occur together on the beach. Here at the edge of the water they run from the incoming waves, and then, when a wave retreats, follow it down, picking up the tiny worms and crustaceans from the wet sand.

Small as is this bird, it makes a very long journey twice each year. The most southern nesting area is in Newfoundland and Nova Scotia. It winters from southern California and North Carolina to central Patagonia. This means that some of the birds may make a journey twice in a year through 100 degrees of latitude. Since many of them visit the Bermudas on the southward journeys, they must be able to fly great distances over the water.

The least sandpiper breeds in the far north. The nests are usually near water, in wet grass. Three or four richly marked eggs are laid. In this species the male takes care of most of the incubation, but the parents share in the care of the young.



Edited by HARRY GILLAM

VPI Launches Fisherman Spending Survey

The VPI Cooperative Fisheries Research Unit has begun a survey of some 5,000 to 6,000 Virginia fishermen to determine the extent of their spending in pursuit of their sport and to determine their fishing preferences. The study was undertaken primarily for the benefit of the Commission of Game and Inland Fisheries. Ted Becker, a graduate student working on an M.S. degree, is handling the survey under the direction of Dr. Laurence S. Davis. Alphonso Smith, a Ph.D. candidate, is assisting Becker with some phases of the project.

Questionnaires were mailed to the selected sample of freshwater fishermen September 3. The sample included purchasers of all types of fishing licenses such as Resident, Non-Resident, County-city, Three-day trip, etc. Fishermen from all geographic regions of the state will be represented. Questions cover frequency of fishing trips, distance traveled, preferences as to species and type of fishing water, and other items which will help determine the fishing habits of the state's freshwater anglers.

The information gleaned from this study will influence all phases of the Commission's fishery management program. The location and management of future Game Commission lakes will be influenced by the amount of preference for this type of angling as opposed to large reservoir and stream fishing, the distance fishermen are willing to travel, and the species of fish they prefer to catch. Stream management and access programs may be stepped up if the survey shows a high demand for this type of angling. The demand for freshwater fishing in the tidewater area should also be revealed by the project.

Sportsmen who receive the questionnaires in the mail are urged to take the time to fill them out and return them. A prompt return with honest answers will amount to a vote for more of the type of fishing that the angler enjoys most. Failure to reply increases the cost of the survey and distorts the results.

Flory Reelected Head of Game Warden Group

Walter L. Flory, Game Warden Area Leader in Prince William County, has been reelected president of the Virginia Game Wardens Association, reports Game Commission Law Enforcement Chief John McLaughlin. This group was formed in 1939 to organize a widows' fund for deceased members and to promote pride and efficiency among warden forces. The association strives to improve the wardens' public image and to upgrade performance standards of its members.

Mr. Flory has served the Game Commission for 22 years and has consistently been a leader in many facets of game warden work. He constantly ranks among the top wardens in the state with his law enforcement work and has still found the time to help train 5,248 of Virginia's young people in hunter safety. On numerous occasions he has led the state in subscription sales for the Commission's *Virginia Wildlife* magazine.

Other officers who were reelected to Association posts were Ralph Austin of Clover, Vice-President; J. R. Bellamy of Richmond, Secretary; and C. N. Hunter of Surry, Treasurer.

Elmer Walters Named Game Warden of the Year

Elmer E. Walters, Game Warden Area Leader in the Norfolk-Chesapeake-Virginia Beach Area, has been named Virginia Game Warden of the Year. Walters has an excellent law enforcement record coupled with the unique ability to command top performance from those working under him. As recipient of the Game Warden of the Year title, he will attend the Southeastern Association of Game and Fish Commissioners to be held in Baltimore this month, where he will receive an attractive plaque during special ceremonies.

Walters was born in Oklahoma and had completed a three-year hitch in the Marine Corps and a little over a year's service with the Norfolk County Police Department before joining the Game Commission as a warden in 1956. He was immediately assigned to the Norfolk

Area where he has remained since that time.

Elmer successfully completed the Dale Carnegie course in Effective Speaking and Human Relations in the fall of 1966. At the same time he was promoted from Game Warden to Area Leader for Nansemond, Norfolk, Chesapeake and Virginia Beach. In this capacity he has consistently urged the men under him to new standards of performance. He has served as an instructor during Game Warden in-service and pre-service training schools sponsored by the Commission.

He lives in Chesapeake with his wife Linda, a son Elmer Junior and two daughters, Pinkie Joe and Kim. The area under his supervision is one of the two most populous in the state.

Scout Leaders Get Hunter Safety Training



Photo by J. W. Courtney, Jr.

A group of Scout leaders made up of (1st row) Albert S. Armentrout of Rockbridge, Va., left, and H. Woodall Hilscher, Jr., of Pittsburgh, Pa.; (2nd row) Donald J. Hobart of Hyattsville, Md., left, and Lynn V. Hooe, Sr., of Pittsburgh, Pa.; (3rd row) Daniel R. Pearson of Oxen Hill, Md., left, and Rexton A. Reed of Virginia Beach, Va.; and (4th row) Daniel Ross of Woodbine, Md., and R. Reginald Ward of Washington, D. C., successfully completed NRA Hunter Safety and NRA Rifle Marksmanship Instructor schools in June at Camp Marriott, Goshen Scout Camps, Goshen, Va. The school was conducted by NRA Training Counselor John W. Courtney, Jr., a pharmacist of West Point, Va.



Edited by ANN PILCHER

Big Cats



Sixty-four youngsters completed the NRA Hunter Safety Course conducted in July at the Southwest 4-H Club Center in Abingdon. At right, instructors State Game Warden R. M. Wolfenden and Warden Patrol Leader Roy A. Smith help some of the boys with their shooting. Camp Manager T. M. Engle, Wythe County Agent Don Gross, and Carroll County Agent Bert Widener assisted the Game Commission personnel in handling the course.

Doug Dalton of Penhook strains to hold up 10 cattfish he caught in June in Smith Mountain Lake. The ten fish weighed a total of 64 pounds. The three biggest fish weighed 10½, 10 and 9½ pounds. Fishing at night Dalton used night crawler bait.

Right: This 25 inch largemouth bass weighed 7 pounds, 2 ounces when creelied June 7 by James Staples of Falls Mills at Falls Mills Dam. Bait: crawfish.

"On Target" at Abingdon



Fishing Fun and Prizes

The H. Page Foltz farm pond provided a good location for instruction, fun and picnic lunch this summer when young anglers competed in the first Page County 4-H fishing rodeo. The event was highlighted by talks by game warden Robert Inskeep and soil conservationist John Crist and a fly fishing demonstration by Game Commission fish research biologist Eugene Surber. Mr. Surber has had extensive fishing

experience all over the United States, especially in his home state of Minnesota. His collection of rods, reels, artificial lures, nets and bait boxes were a big hit with the youngsters.

Directed by Arlis Frymyer, V.P.I. extension agent for agriculture in Page County, the rodeo was held to provide instruction in soil, water and wildlife conservation and was sponsored by the Luray Ruritan Club.

Page County 4-H fishing rodeo winners pose on the H. Page Foltz host farm near Stanley. From left: Micky Vaughn, Johnny Vaughn, Charles Moon, Carol Dovel, Carla Smith, Mary Ann Broyles, Annette Comer and Ricky Foltz.

Courtesy Page News & Courier, Luray.



Tazewell Lunker



Father's Day Catch and Carp on Corn

Below left: Cane pole angler K. C. Travis shows 3 lb. 8 oz. largemouth bass he took June 16 from Westmoreland County's Nomini Creek, using minnow bait. Right: Brothers Thomas (10) and Daniel (8) Scanlon of Harrisonburg caught this Claytor Lake carp in June. Weighing, measuring, and photographing completed, with no means of preserving the 27-inch, 24-pound lunker, the boys returned it to the water. Ten-lb. test nylon monofilament line, closed-face Zebco rod and reel, and corn bait contributed to their success.





Edited by JIM KERRICK

Readying Boat and Motor For Winter Storage

The 1968 boating season is drawing to a close, and it will soon be time to start thinking about preparing your equipment for winter storage. It is a good idea to have a reputable marine dealer inspect your outboard motor after a season's use, or you can go one step further and have him store it for the winter and return it in the spring, tuned-up and ready to go.

However, many boaters prefer to do the job themselves and, if so, here are a few suggestions to follow.

If your motor has been used in salt water, it should be run for a short time in fresh water before being put away for the season. Although modern motors are built to resist salt water corrosion and deposits, this internal flushing will remove all danger. A cloth dampened in fresh water will remove any salt water deposits from the exterior part of the motor.

Drain fuel. The best way to do this is to disconnect the fuel line and let the motor run until the carburetor is emptied. This can be done the last time the motor is used while it is in the water or on a test tank if you have access to one. Fuel tanks should be emptied and cleaned.

Drain the cooling system. With the motor out of the water and in an upright position, give the starter rope several pulls. This will remove all the water from the pump and cooling passages and eliminate the possibility of its freezing and cracking the block.

Drain lower unit and refill with a good outboard gear oil.



Clean fuel filter. Remove the filter bowl and wipe it out. Clean the filter element and the bowl with benzine or clean gasoline. The precaution will prevent the formation of gum deposits.

Remove and clean the spark plugs. While the plugs are out, squirt some good lubricating oil into the cylinder openings and at the same time rotate the fly wheel manually. The oil will then be distributed evenly over all the cylinder walls, pistons and rings, and the danger of condensation and rust forming on the parts will be lessened.

Internal parts may also be protected by injecting lubricating oil directly into the carburetor through the removable



Evinrude Motors photos
Fuel tanks should be emptied and cleaned.

button on the air silencer. Again, give the starter rope several slow pulls.

Protect all throttle linkage from possible rust or corrosion by applying a coating of grease to moving parts.

Drain gear case. The lower gear case should be drained by removing the drain plug on the motor's skeg. Drain completely and refill with the type of outboard gear oil recommended by the manufacturer.

Inspect the propeller. If the propeller is bent or broken, take it to a marine dealer for repair or replacement. Although a propeller may not appear to be badly damaged, close inspection may reveal that it is out of pitch, a condition that can cause poor motor performance.

Clean the exterior. Thoroughly clean the entire motor with a damp cloth. After it dries, go over the lower unit with a soft cloth to which a few drops

of oil have been applied. The motor hood is best protected by polishing it with a good auto wax.

Select storage place. A clean and dry place is best. Try to avoid areas of excessive dampness and dust. The motor should be stored upright on a stand or rack that is off the floor.

Do not cover the motor with a material that will seal the moisture in. It is far better to leave it uncovered completely. Dust can be removed much easier than rust caused by moisture trapped under the covering.

Here are a few points to remember when putting your boat away. Remove all gear and excessive weight from the boat. If it is stored on a trailer, release the transom hold-downs and the winch rope to avoid unnecessary pressures. Be sure that the weight of the boat is resting on the tongue of the trailer and the transom support. If the rollers are pushed up against the boat bottom, the boat can easily develop a hook which can seriously affect its performance.

The trailer should be blocked up to keep the weight off the tires. It is a good idea to remove the wheels and inspect the wheel bearings. If water has slipped past the seals, the bearings will be susceptible to rust. Remove and thoroughly clean the bearings and repack with proper type of lubricant.

By following these procedures you will avoid costly repair bills and when spring rolls around, you will be all set to take to the water.

Damaged or worn propellers should be repaired or replaced.



Symbol in Trouble

(Continued from page 3)

Obviously contributing to the bald eagle's lack of nesting success in recent years is direct competition from the human population for desirable habitat. Many places relatively undisturbed until recently are no longer so, and they no longer are occupied by nesting eagles. While it is illegal to kill or wilfully molest or disturb eagles, this prohibition has never prevented the cutting of the only bald eagle nest tree for miles around in the normal course of developing waterfront or other property, even though eggs or eaglets be actually present in the nest at the time.

In some areas eagles still do nest, and lay, and incubate, but seldom hatch an egg, and this may be indicative of the most subtle, most damaging, and most alarming factor in their decline of all. Where large amounts of DDT have been found in polluted waters, the nesting success of local populations has been poorest.

Like man, the eagle is a long-lived species whose ecological niche is at the top of a long food chain. Persistent pesticides in the environment are assimilated in sub-lethal quantities by lower food chain organisms. As these organisms are consumed by others higher in the chain, each predator retains in its own tissue the persistent poisons ingested with its prey. The process is cumulative, and as feeding continues at all levels the concentration of what was a mere trace of poison in the environment builds ever higher within the chain of food, which is the chain of life. Thus, fish in water contaminated with persistent insecticides may accumulate levels of poison in their flesh that the fish themselves can tolerate, but which can in time render the eggs of fish-eating birds infertile. The longer a predator's life span, the higher the poison concentration in his body may become; and the bald eagle has a relatively long normal life span.

The eagle's demise may be just one of the prices of what we call progress, as its habitat is "polluted and reduced by those who care more for eagles on dollars than eagles on the wing." * The bald eagle is a long-lived predator, whose ecological niche is at the top of a long food chain which ascends through an ever increasingly polluted and poisoned environment. And so is man!—J. F. Mc.



American bald eagle, reproduced from a painting by Alfred R. Lupton, Arlington, Virginia.

*Tom Evans, "The Nation's Symbol," *Birds in Our Lives*, U. S. Department of the Interior, Fish and Wildlife Service, GPO, Washington, 1966.

BOATERS ... NOW HEAR THIS!

INLAND
WATER
TRAFFIC
SIGNS

MEANING



BOATS
KEEP OUT



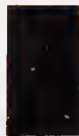
BE CAREFUL;
DANGER IN AREA



CONTROLLED
AREA

PRINTED INFORMATION MAY BE WITH THE SYMBOLS .. *READ IT !*

CHANNEL OR
SAFE ROAD
MARKERS



TRAVEL BETWEEN BLACK
AND RED MARKERS -
TO THE RIGHT OF
STRIPED MARKERS



DISTRESS!
HELP US!



DIVERS!
STAY AWAY

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Boaters will find these explanatory signs at many of the Game Commission's boating access and launching facilities where regulatory markers have been established.